

**REMARKS/ARGUMENTS**

Claims 1, 9, 10, 14, and 17, remain in the application. Applicant has further provided new claims 18 to 23 for the Examiner's further consideration. These new claims are composition claims and have full support from the original disclosure. No new subject matter has been added.

**The Examiner has rejected Claims 1 and 10 under 35 U.S.C. 112, second paragraph,** as purportedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has therefore amended claim 1 to more specifically focus the invention to a low bicarbonate calcium free composition having a concentration of bicarbonate sufficiently low to allow preparation of a sterile dialysis solution having a bicarbonate level of 5-30 mmol/l. No new matter has been added in making this amendment and the amendment is fully supported from the disclosure and clearly defines the invention in clear and distinguishing language. Full reconsideration is respectfully requested.

Support for these amendments is found in the definition of the Field of Invention, on page 1 of the disclosure as well as at line 25 onwards of page 6, as well as the first paragraph on page 7. Further support is found in the summary of the invention and specifically at page 9, line 13 onwards.

**The Examiner has rejected Claims 9 and 10 under 35 U.S.C. 102(e)** as being allegedly anticipated by Mahiout (US 6,492,336). The Examiner purports that Mahiout explicitly discloses a peritoneal dialysis solution that contains anions and

cations with respect to Claim 18 of Mahiout in view of Claim 10 of the present invention.

Applicant has taken note of the Examiner's alleged rejection of claims 9 and 10 as being anticipated by Mahiout, et al. (US 6,492,336). Applicant submits that the peritoneal dialysis fluid of Claim 18 of Mahiout depends on Claim 1 which necessarily includes "at least one sugar derivate" as an essential element of that invention. The "at least one sugar derivative" is present for the removal of water and solutes from a patient by peritoneal dialysis (see column 3, lines 40-43). Applicant submits that such "at least one sugar derivative" is not present nor is it intended to be present in its solution/composition. Applicant further submits that the "at least one sugar derivative" is an essential element of Mahiout's invention and thus a person skilled in the art could not conceivably derive a composition not containing this essential element from the teachings of this patent.

Clearly '336 does not teach a calcium free low bicarbonate dialysis concentrate for use in preparation of a dialysis solution. Every one of the Examples 1-16 of '336 include calcium.

The objects and teachings of '336 are clearly not related to the present invention. Elements of '336 may therefore not be extracted from the specification to pick and chose these points to render the present claim set as un inventive. '336 teaches a glucose free hydrogenated oligosaccharide solution having no effect on cell function during peritoneal dialysis. Claim 18 must therefore be read within these limitations. Further, one will note upon review of the examples provided in the '336 Patent, more specifically examples 2, 6, 10, and 14 it is discussed that the amount of bicarbonate is 2.94 g/l which works out to 35 mmol/l. Also, examples 4, 8, 12, and 16 it is discussed that the amount of bicarbonate is 2.52 g/l which works out to 30

mmol/l. Hence, none of the examples in the '336 Patent discuss or even suggest a calcium-free dialysis solution with 30 mmol/l or less of bicarbonate as is now claimed in the present application. In view of the present amendments to the claims it is submitted that the Examiner's rejection has been traversed in that '336 does not teach a calcium free, low bicarbonate dialysis solution. There is no discussion in '336 to even motivate one skilled in the art in that direction. For prior art to anticipate it must include each and every limitation found in the claims. In view of the amendments this clearly is not the case. Nor would the amended claims be obvious from reading the '336 reference since one skilled in the art would not be motivated to arrive at applicants amended claim set. Full reconsideration is requested.

Applicant submits that in light of the above arguments and the amendments to the claim set, the Examiner's rejection is now overcome.

**The Examiner has rejected Claims 14 and 17 under 35 U.S.C. 102(b)** as being anticipated by Chemical Abstract 124:325351 (hereinafter referred to as CA '351). The Examiner purports that Chemical Abstract 124:325351 explicitly discloses treating advanced renal failure patients with a calcium-free dialysis solution.

Applicant has taken note of the Examiner's rejection for anticipation in light of CA '351, but submits the following as rebuttal.

Claims 14-17 clearly distinguish from the Chemical Abstract reference. The '351 CA reference does not teach low bicarbonate levels but only that of 30 mmol/l. Applicant further submits that the Chemical Abstract only discloses a composition containing sodium 135 mmol/l, potassium 2.5 mmol/l, chloride 108 mmol/l, magnesium 0.75 mmol/l and bicarbonate 30 mmol/l.

As discussed above in relation to the '336 reference, Applicant submits that the essence of the present invention is particularly summarized at page 7, lines 16-30,

“... Usage of a low bicarbonate dialysate solution of the invention takes into account the bicarbonate derived from citrate, and as a result the total effective bicarbonate concentration is accounted for and effectively controlled. Thus, metabolic complications are effectively minimized. The low bicarbonate sterile solution of the invention typically contains a bicarbonate concentration within the range of 5-30 mmol/l, preferably between 20-30 mmol/l, and more preferably  $25 \pm 2.5$  mmol/l. The solutions with bicarbonate concentrations below 25 mmol/L may have sodium citrate added to them up to 20 mmol/L to act as an anticoagulant. *(emphasis added)*

The benefit of such a low concentration of bicarbonate as 25 mmol/L is that if the patients bicarbonate level drops below this, bicarbonate diffuses from the dialysate across the semipermeable membrane to the patient correcting the problem. If there is an excess of bicarbonate in the blood (metabolic alkalosis) then bicarbonate will diffuse out into the dialysate effluent and be removed returning the patient toward normal.”

Applicant submits that CA '351 does not result in a solution containing less than 30 mmol/l of bicarbonate. There is no indication or motivation in the Chemical Abstract of addressing the problem identified in Applicant's disclosure, or any reasoning for the selecting low levels of bicarbonate in a dialysis solution.

Applicant further submits that the invention in CA '351 would not render the present invention obvious to a person skilled, based on his common general knowledge, since it does not teach or even suggest to have a level of bicarbonate below 30 mmol/l, nor motivate one skilled in the art to do so. Applicant was unable to locate a full copy of CA '351 through it's sources and therefore requests same of the Examiner. It is difficult to determine the teachings in full without a complete copy.

The Examiner has rejected Claims 14 and 17 under 35 U.S.C. 103(a) as being unpatentable over Chemical Abstracts 124:332435 in view of Mahiout.

Applicant submits that neither '336 nor CA '351 would lead a person skilled in the art to prepare and use a solution containing less than 30 mmol/l of bicarbonate. There is no teaching in CA '351 or '336 of the problem Applicant is addressing nor the reasoning for the selected low levels of bicarbonate in his dialysis solution.

Applicant further submits that neither CA '351, or '336 would render the present invention obvious to a person skilled in the art, based on his common general knowledge, since it does not teach or even infer a low level of bicarbonate below 30 mmol/l nor motivate one skilled in the art to do so. Considering that neither reference teaches in this direction, how could any combination of these references result in Applicant's amended claim set. Full reconsideration is requested.

The present invention is clearly novel and unobvious in light of U.S. 6,492,336 B1 for the following reasons.

U.S. 6,492,336 claims (in Claim 18) a dialysis fluid according to Claim 1 containing:

from 125 to 140 mEq/l of sodium;

from 90 to 125 mEq/l of chloride;

from 1 to 5 mEq/l of calcium; (emphasis added)

from 0.2 to 5 mEq/l of magnesium;

and from 25 to 40 mEq/l of a buffering anion selected from the group consisting of lactate, pyruvate and bicarbonate.

Therefore the composition cannot be considered as "calcium free". Further, no discussion of low bicarbonate levels is taught nor the reasoning for doing so.

Applicant also submits that in the description of U.S. '336 an essential element of the invention is the presence of "at least one sugar derivative" which derivative is described at column 3, lines 43-59 of that patent. Applicant reminds the Examiner that Claim 18 of U.S. '336 necessarily contains this above referred to "at least one sugar derivative" since it depends on Claim 1.

In light of the above arguments and the amended set of claims, Applicant believes the obviousness rejection in light of U.S. '336 and CA '351 has been overcome. Applicant respectfully requests favourable reconsideration on this point.

The Examiner requests from the Applicant a search report or notification of relevant prior art, written opinion or IPER with regard to related applications, WO 2002/049693 and published CA 2,365,787. Applicant submits to the Examiner that the related prior art from all filings is therefore set out in the attached Supplementary Information Disclosure Statement. The Examiner is referred to the first filed Information Disclosure Statement for the remainder of relevant art.

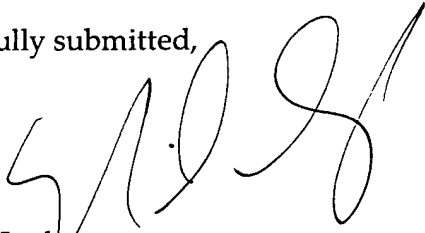
- U.S. Patent No. 4,630,727 to Feriani et al.
- U.S. Patent No. 5,211,643 to Reinhardt et al.
- U.S. Patent No. 5,945,449 to Purcell et al.
- U.S. Patent No. 6,492,336 to A. Mahiout
- DE 41 14 908 A1
- WO 96/01118
- Yatzidis et al., "Hemodialysis with a New Single Stable Bicarbonate Dialysate", Nephron, Vol. 64, 1993; 27-31
- F. H. Leenen, et al., "Hemodynamic Changes During Acetate and Bicarbonate Hemodialysis", Artificial Organs 8(4), 1984; 411-417
- M. Kaye et al., "Calcium-free Dialysate: Development and Applications", Clinical Nephrology, Vol. 31, No. 3, 1989; 132-138

- M. Kaye and D. Fisher, "*Changes in Intact Parathyroid Hormone Levels During Hemodialysis Following Exposure to Either Differing Dialysate Calcium Concentrations or Calcium-Free Dialysis with Varying Calcium Infusion Rates*", *Clinical Nephrology*, Vol. 34, No. 2, 1990; 84-87
- M. Kaye, "*Long-term studies using a calcium-free dialysate*", *Clinical Nephrology*, Vol. 40, No. 4, 1993; 221-224
- P.Y.W. Tam et al., "*Slow Continuous Hemodialysis for the Management of Complicated Acute Renal Failure in an Intensive Care Unit*", *Clinical Nephrology*, Vol. 30, No. 2, 1988; 79-85
- E.F.H. Van Bommel et al, "*Acute Dialytic Support for the Critically Ill: Intermittent Hemodialysis Versus Continuous Arteriovenous Hemodiafiltration*", *Am. J. Nephrol.*, Vol. 15, 1995; 192-200
- E.F.H. Van Bommel, "*Are Continuous Therapies Superior to Intermittent Haemodialysis for Acute Renal Failure on the Intensive Care Unit?*", *Nephrol Dial. Transplant* 1995 Editorial Comments, p. 311-314
- Davenport et al., "*Hyperlactataemia and Metabolic Acidosis During Haemofiltration Using Lactate-Buffered Fluids*", *Nephron*, Vol. 59, 1991; 461-465
- M. Leblanc et al., "*Bicarbonate Dialysate for Continuous Renal Replacement Therapy in Intensive Care Unit Patients With Acute Renal Failure*", *Am. J. Kidney Diseases*, Vol. 26, No. 6, 1995; 910-917
- Knaus W.A. et al., "*APACHE II: A Severity of Disease Classification System*", *Critical Care Med.*, Vol. 13, No. 10, 1985; 818-829
- Jordan, D.A. et al., "*Evaluation of Sepsis in a Critically ill Surgical Population*", *Critical Care Med.*, Vol. 15, No. 10, 1987; 897-904.

Lastly, the Examiner believes "NORMOCARB" to be a bicarbonate based dialysate solution but does not yet have additional information on the product. Therefore, Applicant confirms that NORMOCARB is a registered Trade Mark belonging to the assignee of this application. Please refer to the attached printout which indicates that NORMOCARB® is a Registered Trade Mark owned and marketed at present, by the Assignee of this application.

If any questions arise, the Examiner is respectfully requested to contact Neil Hughes or alternatively Charles Pigeon at (905) 771-6414 collect at the Examiner's convenience.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'N. Hughes', with a stylized flourish at the end.

Neil H. Hughes  
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Agent for the Applicant

NHH:md

Enclosures

- 1) Request for 2 Month Extension of Time
- 2) Cheque in the amount of \$630.00 USD
- 3) Printout referring to NORMOCARB
- 4) Information Disclosure Statement